# Unit Plan Template

Click on any descriptive text, then type your own.

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| **Unit Author** | | | | | | |
| First and Last Name | | | | | James Sampson | |
| School District | | | | | Hood River County School District | |
| School Name | | | | | Wy’east Middle School | |
| School City, State | | | | | Hood River, OR 97031 | |
| **Unit Overview** | | | | | | |
| **Unit Title** | | | | | | |
| What Matters Most: Big Ideas in Properties of Matter | | | | | | |
| **Unit Summary** | | | | | | |
| Students are introduced to thinking of the physical world as composed of either a) objects of ***“matter”*** (physical stuff) or b) ***“energy”*** (the ability to cause actions on matter). | | | | | | |
| **Subject Area** | | | | | | |
| The subject focuses on investigating Matter. Its properties, measurable qualities, and the changes (physical and chemical) it may undergo at different times, places and conditions. Detailed study of Energy (the ability to affect Matter) is relegated to a latter unit. It concludes with a special emphasis on activities and a project on the concept of *Density,* as an opportunity to practice measurement, observation, prediction, application to real world situations, and physical changes and chemical changes | | | | | | |
| **Grade Level** | | | | | | |
| 6th grade (extendable to 7th & 8th) | | | | | | |
| **Approximate Time Needed** | | | | | | |
| 7 74 minute classes with extra individual time available to sts before & afterschool in library or computer lab. | | | | | | |
| **Unit Foundation** | | | | | | |
| **Targeted Content Standards and Benchmarks** | | | | | | |
| 6th grade standards:  SF: 6.1P.1 Physical & Chem. Properties of Matter  SI: 6.3S.1 Design & Conduct an investigation w/appropriate tools, collect data.  6.3S.2 Organize, Display data, Generate a conclusion from the evidence. Communicate to others.  6.3S.1 Explain why only one variable must change, why if not the outcome may not be validly attributable to a single variable.  ED 6.4D.1 Define a problem that addresses a need and identify the science principles that may be related to possible solutions.  6.4D.2 Design, construct & test a possible solution using appropriate tools/materials. Evaluate proposed designs to the problem.  6.4D.3 Describe examples of how engineers have created inventions that address human needs and aspirations. | | | | | | |
| **Student Objectives/Learning Outcomes** | | | | | |
| Sts. Will be able to:  Recognize the physical Universe can be subdivided into either Matter (physical ‘stuff’) or Energy (the ability to affect/change Matter).  Describe the 3 states of matter and the forces that transform them from state to state.  Understand matter is composed of: a) atoms, & b) has volume, & c) has mass.  Recognize the hierarchial organization of matter from atom>molecules (elemental vs. compound)>substances (including pure substances, homogenous & heterogenous mixtures) > objects.  Identify fundamental measurable traits of matter, including: Size (lengths), Shape, Mass, Weight, Color, Hardness, Ductility, Maleability, Luster, State, Temperature, Conductivity.  Additionally, be able to measure and calculate derived measures including Volume and Density using formulae. (V = L x W x H and D = M / V ) | | | | | |
| **.Curriculum-Framing Questions** | | | | | |
|  | | **Essential Question** | | What composes the objects of the physical universe? | |
|  | | **Unit Questions** | | What are the properties of matter? | |
|  | | **Content Questions** | | What are at least 8 characteristics of matter that can be described & measured?  What are two different ways to find the volume of matter?  What is the current model of the order of complexity for matter from simplest to most complex of physical objects or systems.  What is the difference between matter, mass, & weight.  How does temperature affect density?  What are 3 (or more) uses of density measures in real life.  What does it mean to have a ‘compound’  How do you measure the density of an object? (of a solid?, liquid? gas?)  (Advanced/Gifted Questions)  How does density of an object and density of a surrounding fluid affect buoyancy of the object?  How does temperature affect buoyancy? | |
| **Assessment Plan** | | | | | |
| **Assessment Timeline** | | | | | |
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| **Assessment Summary** | | | | | |
| Two sets of assessments will be used; Student formative self assessments and Teacher formative and sumative assessments. Students will use rubrics & checklists to self assess their progress eg. “Student Teamwork Rubric” Students will also provide peer review and critiques of teammates contributions in the project and its presentation.  Teacher assessments will be: ongoing observational (during working times), informal formative w/ feedback during lab activities & wiki & Glogster production, formal w/ graded quizzes and worksheets, Rubric guided for project products (wiki and Glogster). (*Also, see procedures/scope & sequence in ppt slide presentation)* | | | | | |
| **Unit Details** | | | | | |
| **Prerequisite Skills** | | | | | |
| Language and communication skills, basic math operational skills (+, - , ÷, X,etc.),Teamwork and social skills. Self monitoring & behavior tracking skills. | | | | | |
| **Instructional Procedures** | | | | | |
| (to be inserted -------- see procedures/scope & sequence in ppt slide presentation) | | | | | |
| **Accommodations for Differentiated Instruction** | | | | | |
|  | **Special Needs Students** | | **Differentiated Instruction**  **Resource Student**   * Give the student extra time and individual instruction * Have support personnel or volunteers help with lab assignments * Reduce the number of concepts needed to master * Pair the student with a buddy * Provide graphic organizers and other charts/tables aids. * Reduce or limit the extent of individual components required within the task if necessary. * Allow modifications to task delivery such as oral presentation. * Use Holt “Directed Reading series B” for text assignments * Use Holt online Reading aides. * Provide word banks and reduce distractor responses on written tests. | | |
|  | **Nonnative Speakers** | | **English Language Learner**   * Allow the student to study science concepts with an ELL assistant during supplemental instruction outside of class * Pair the student with others during project work when the language load indicates a necessity * Have the student prepare materials in the student’s first language * Provide Holt Spanish version worksheets from Teacher Resources CD * Use in building translating staff to prepare ‘in language’ worksheets and materials * Provide at desk laptop w/ online translator dictionary open. * Allow student to write & present orally in native language * Allow student to present to reduced audience of peers (same language friends) and teacher. * Provide extra time and extended deadlines. | | |
|  | **Gifted/Talented Students** | | **Gifted Student**   * Instruct an advanced student to complete an independent research topic, such as finding how important density of material is to objects like space shuttles and ocean liners, or investigating buoyant force, air pressure, and Boyle’s and Charles’s Gas Laws * Have the student compile all students’ work on a class wiki or help others with labs and computer work * Allow some parts of regular assignment to be excused in lieu of a more challenging/interesting topic w/in the unit content. * Involve advanced students in the planning and decision making of content in upcoming connected topics or lessons. | | |
| **Materials and Resources Required For Unit** | | | | | |
| **Technology – Hardware** (Click boxes of all equipment needed) | | | | | |

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| Camera  Computer(s)  Digital Camera  DVD Player  Internet Connection | Laser Disk  Printer  Projection System  Scanner  Television | VCR  Video Camera  Video Conferencing Equip.  Other Probeware and Interfaces, Vernier Software Inc. (SS temp probe, Dual range force sensor,Light sensor) |
| **Technology – Software** (Click boxes of all software needed.) | | |
| Database/Spreadsheet  Desktop Publishing  E-mail Software  Encyclopedia on CD-ROM | Image Processing  Internet Web Browser  Multimedia | Web Page Development  Word Processing  Other |

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| **Printed Materials** | Textbook: Holt Science & Technology: Introduction to Matter (2008)  Holt: Directed Reading Worksheets (A & B) Chapter (& sections) 2,3,4.  Teacher Generated: Worksheets, Project Expectations, Graphing Requirements, etc. |
| **Supplies** | Density Unit materials from supply tub. (block assortment,etc.) Measuring tools; rulers spring scales, digital multimeters, hammers, triple beam balances, (see materials list from activity/lab worksheets) |
| **Internet Resources** | www.**vernier**.com/tech/manuals.html (probe user manuals)  www.**vernier**.com/mbl/labpro.html (probe user guides) www.unr.edu/educ/raggiocenter/pdf/TIES-balloon-module.pdf [www.grow.arizona.edu/SPT--AdvancedSearch.php](http://www.grow.arizona.edu/SPT--AdvancedSearch.php)?  Other searches using query “density lesson(s) middle school”  Online wikis, interactive lesson sites, Wikipedia, etc. |
| **Other Resources** | Guest speakers: Lab technichian at local hospital, Brewer at local (Full Sail) microbrewry, Environmentalist USFS Willamette and Mt. Hood National Forests, Resource Mgr. Middle Fork Irrig. District |

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